

Hobbies

WEEKLY

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Complete details for building A CHILD'S TRICYCLE

THE little tricycle runabout shown here, is the sort of thing any reader could make up for a tiny toddler to use with his first steps. It does not require a large amount of wood, and almost any odd pieces can be used providing they are smooth and strong. The seat is 10in. from the ground, the wheels are 4½in. diameter, and the steering handle is 16in. high.

Parts Supplied

Apart from the wood, of course, there are the wheels themselves and the metal parts forming the movable bracket of the front wheel. We have arranged, however, for these to be supplied complete, and particulars of them are given in our

advertising pages. Readers can, therefore, purchase them right away, and in the meantime, be preparing the wood-work ready for actual construction.

The main uprights, crossbar, and back axle are needed of fairly thick material, but all shapes are simple and the wood

can be cut with an ordinary saw and planed smooth. The seat itself should be of plywood if possible, to provide strength over its extreme width. Although in our diagrams and details here it is ¼in. thick, a board of ½in. thickness is just as suitable. The only other wide piece of wood is that of the seat support, but as this is only 4in. wide, it need not be more than ¾in. thick.

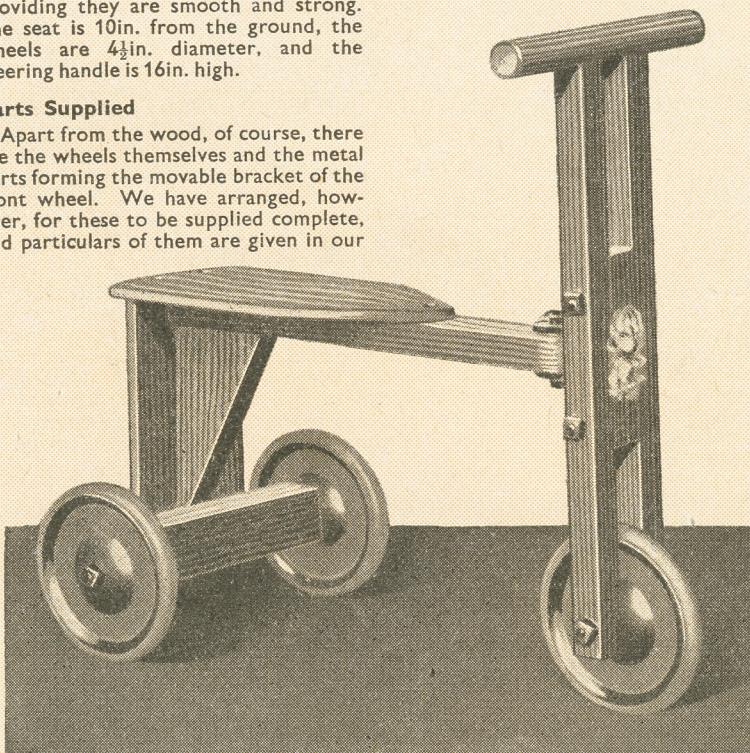
The whole of the construction can be undertaken with a few carpentry tools, and the whole thing is finished off with varnish. Remember that the article will be used by a child with soft hands, so do be sure to see that all edges are smoothed slightly round, and all surfaces glass-papered to prevent any likelihood of tiny shivers arising. The details in the diagram give most of the particulars required, and a good plan is to make a list of the boards needed and get them together before a start is made.

Front Pillar

The front pillar consists of two ¼in. square pieces 14½in. long. At the top end a rounded recess must be shaped in carefully with file and glasspaper to take the cross handle. A round piece of ½in. diameter rod is needed for this, cut 7in. long. The spacing piece between the two parts is 4½in. long and 7in. wide. Glue it between the two strips 4½in. from the underside of the handle, and then stiffen by driving two bolts through the entire thickness. A detail of this portion is shown at Fig. 1.

Adding the Wheels

At the bottom end, drill a hole to take a bolt ½in. upwards from the bottom end.



The parts should be painted or varnished before the wheels are added. All wheels can, indeed, be left until towards the end of construction.

Now for the seat and back wheel portion. The size and shape of the seat itself, cut from thickness as previously mentioned, is shown in Fig. 2 and the piece beneath it to act as a support is shown in Fig. 3. This back support piece should be $\frac{3}{8}$ in. or $\frac{1}{2}$ in. thick. The seat itself is fitted to a $\frac{1}{2}$ in. thick strip $1\frac{1}{2}$ in. long and $1\frac{1}{2}$ in. wide. The back end is cut square, but the front end is

these should be drilled carefully, and in line with each other where necessary, to ensure straight running.

Now comes the fitting of the two parts together by the angle of metal provided. The detail at Fig. 5 possibly makes this

all cases, washers should be added between the bolt and the actual material, and in the case of the wheels, between the metal part and the wood. See the nuts on the bolts are screwed up firmly.

The whole woodwork, after being rubbed down smooth, is now given a coat of hard, clear varnish. If you prefer, you can paint the whole thing in bright colours. When the varnish is hard, the wheels can be added. Be sure to get them true by driving the holes straight into the wood in line with each other where necessary.

The Wheels

The wheels supplied are painted red, with rubber tyres, which may be

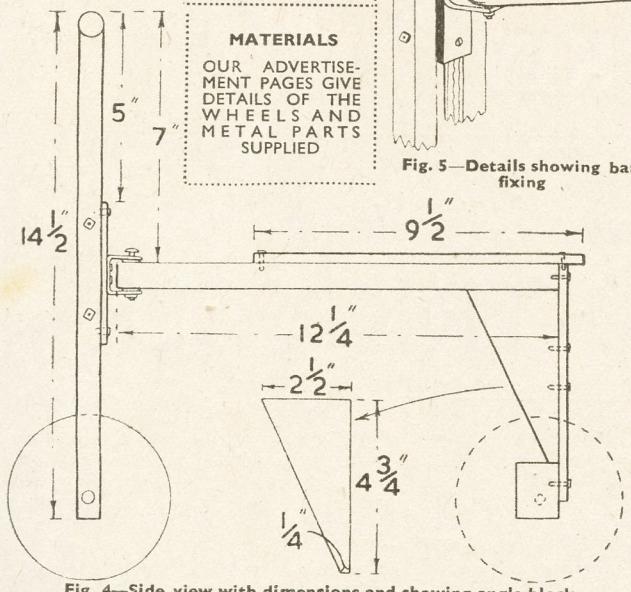


Fig. 4—Side view with dimensions and showing angle block

rounded to allow movement of the pillar portion.

Back Axle

The axle of the back wheels (see Fig. 3), is 7in. long, $1\frac{1}{2}$ in. wide and $1\frac{1}{2}$ in. thick. As a support piece for the seat strip, an angle block $4\frac{1}{2}$ in. long, $2\frac{1}{2}$ in. wide and $\frac{3}{8}$ in. or $\frac{1}{2}$ in. thick is needed. It is shown in the side view of the article at Fig. 4.

Notice that the bottom point of the triangle is cut away to leave a $\frac{1}{4}$ in. wide part to rest on the crossbar. This crossbar is shown dotted in Fig. 3, and you can see how the corner block passes from there under the long upper strip. The upright triangular block is marked in place halfway along the axle bar which will provide for the back seat support to be screwed on to it $1\frac{1}{2}$ in. from each end. Thus the whole thing will be central with the seat screwed on in turn to overlap the back support slightly on each side.

Bolt Holes and Heads

Glue these parts strongly together, adding the planed back previously mentioned (see Fig. 3). In addition to glue, screws should be added as indicated. These, of course, are countersunk below the surface of the wood, particularly in regard to the seat, so that no parts are projecting to catch. The metal fittings include, as previously mentioned, bolts for the necessary parts. Holes for

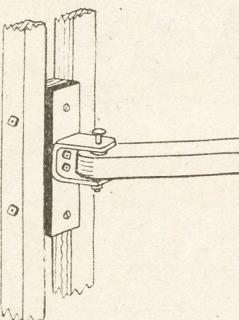


Fig. 5—Details showing bar fixing

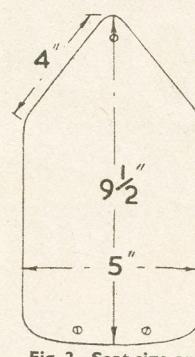


Fig. 2—Seat size and shape

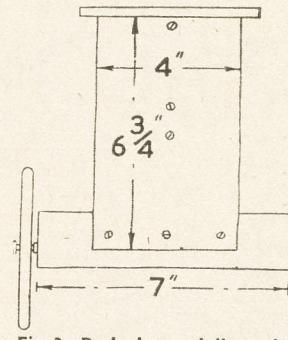


Fig. 3—Back view and dimensions

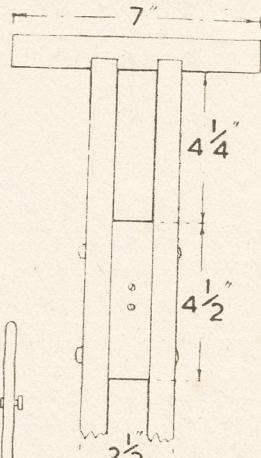


Fig. 1—The top handle and block

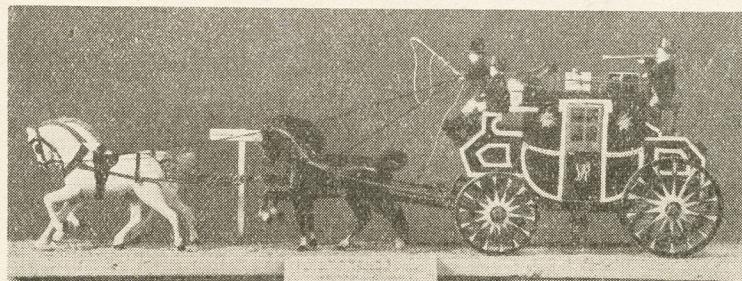
plain. The 4in. plate is screwed on the inside of the steering-handle block, so that the seat and strip piece are horizontal. Test this out before fitting, and then drive wood screws through into the centre block for fixing.

The seat portion is put into the bracket piece, and there bolted right through. In

a guide to colouring for the rest of the article. See they revolve smoothly, and also that the front steering column works easily in turning. If you wish, the seat itself can be padded with flock or stuffing, and then covered with some fairly strong American cloth, Rexine or leatherette material.

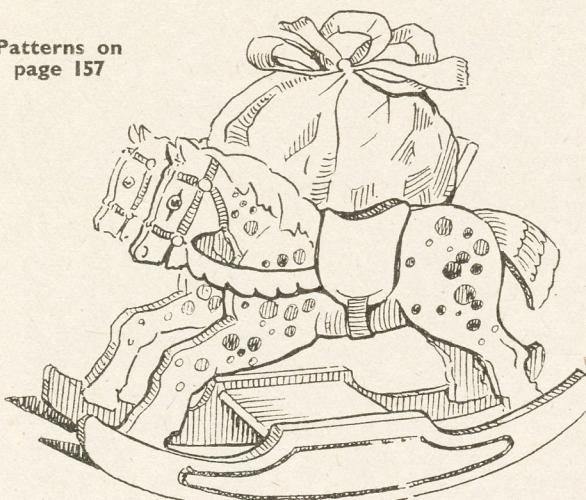
A Stage Coach at Gibraltar

Makers of this popular design are not confined to the British Isles. This one for instance, was made by Mr. H. Zammit of Lime Kiln Steps, Gibraltar. It is, of course, made from our 236 Special Design, to which realistic coachmen and horses have been added. Mr. Zammit also sent us a picture of his model H.M.S. Vanguard, which he photographed himself at the very moment the actual Vanguard was seen in the background coming into the dockyard on her way back to England. Readers may remember she laid at the quay side close to Amethyst, when that famous frigate arrived.



A simple Rocking-Horse GIFT CARRIER TOY

Patterns on
page 157



THIS novelty can be made quite quickly from a few pieces of wood and some small pots of oil colour. If oil colour is not available, then good water colour poster paint can be used to advantage. It should be apparent from the little sketch what the novelty consists of.

There are two little spotted ponies on rockers, and between them there is formed a seat on which a doll could be seated. For the sake of making the rocking horse suitable as a gift, however, a parcel of candies or a mystery parcel may be made up and tied to the seat as in our sketch.

The Patterns

Of course, other ideas may occur to the worker to make the rocking horse attractive as a gift to send through the post. It should be borne in mind at the start that the article must be strongly made and put together with screws and glue. We include in this issue the full-size patterns (on page 157) for the horse and the rockers. These parts are, of course, cut to shape, and, therefore, the patterns can be stuck down to the wood direct and cut round.

If, however, the reader wishes to preserve the copy of *Hobbies* for future use, he can trace off the simple outlines of horse and rocker. Then transfer these outlines to the wood by means of a hard pencil over carbon paper. Having cut then, the one horse, the second can be got by using the cut-out as a template for drawing round.

For Making in Quantity

If a number of these novelties are being made for sale in shops, then it would be a good plan to cut one outline of each of the horse and the rocker in thin wood or even stout card and keep

If the parts are made up separately they should be glued in pairs. The position of the horse's feet is indicated by the dotted lines on the pattern. For sake of strength, a countersunk screw might be added in each hoof of the horse to be afterwards painted over.

Painting

Each of the horses and rockers is now painted in gay colours. The saddle and trappings of the former can be bright red, with white and grey spots for the horses. The rockers might be green or red.

The connecting links between the pair of horses and rockers consist of three $\frac{1}{4}$ in. thick pieces of wood, two upper pieces forming the seat and one piece below connecting the rockers. All are cut to the measurements shown in the sectional diagram Fig. 1, the near side horse, etc., being here removed to show the construction.

Make a slight chamfer along the back of the seat piece, where it joins the back, and round off the front and top edges, as shown, with coarse and fine glasspaper.

Points to Remember

When painting the horses be careful in continuing the body colour right over the thickness of the wood all round the outline. The saddle and girth band, etc., are also carried over. To take away the plainness of the rocker sides a panel in a different colour paint may be added, as shown in the sketch.

Unfortunately so many of the models and toys made, are spoiled in their final work. No matter how well you cut and assemble the parts, the whole thing can be spoiled by bad finish with the paint brush. Usually the job is rushed, and the paint appears irregular and rough.

The whole work should receive a first coat of light colour, allowed to sink in before the second is applied.

Helpful Replies of General Interest

Gramophone Motor

HOW could I make an electric motor strong enough to turn round a gramophone turn-table? (G.D.J.—Abercarn).

UNFORTUNATELY it would be very difficult to make a motor sufficiently quiet and smooth-running for record playing without special parts (armature, etc.), and these would be extremely difficult to obtain. Because of this, it does not appear practicable to make a motor which would give satisfactory results.

Heat Transfers

COULD you tell me something about the manufacture of 'Heat Transfers', and if they can be made at home, or is special machinery required? I refer to simple transfers for applying to cloth with a hot iron, for embroidery purposes. (S.S.—Buenos Aires).

THE making of heat transfers at home is not a very practicable proposition, but you could experiment without much trouble, and possibly get satisfactory results. For the design itself you would require a printing block, which could be either a line block or a lino-cut or woodcut, and something in the nature of a printing press wherewith to apply the design to the transfer paper.

The main item is, of course, the transfer ink, and this consists essentially of a pigment such as aniline dye blended with a material capable of being brought into a liquid state, like a printing ink, and which, after it has dried will become partially soluble or sticky when subjected to moderate heat. Such materials as shellac or resin respond in this way; they can be dissolved in spirit and should be blended with a filler such as whiting or flour to give enough body to act as a printing ink.

Tubular Bells

IWISH to construct some musical chimes, using brass tubing for the various notes, and obtaining the maximum volume from each individual tone without altering such if possible. (A.H.—Grays).

YOU are undertaking a difficult task in attempting to make a set of musical chimes or tuba bells. There is no fixed data on such subjects, because there are so many variable factors which are quite unpredictable.

Every piece of tube varies in resonance, but your best course is to try by experiment. As a start, take a brass tube about 1 in. diameter, $\frac{1}{16}$ in. thick and 3 ft. long, close one end and suspend it, then tune it to the nearest note to its own natural note—by reducing the length. Higher notes will be obtained by shorter, thinner or smaller diameter tubes; lower notes will result from the use of longer and thicker tubes.

There is probably a space in your rooms for these RECESS BOOKSHELVES

BOOKS are often a problem, especially on starting house. The books of bachelor days along with those of one's wife tend to lie in untidy and inaccessible piles and end by being put in utility bookcases, to stay near the floor and collect most dust, and be the immediate objective of all young children who enter the room.

A bookcase is the obvious solution, but for the time being, bookcases, besides being expensive are hard to get to suit varying libraries and different sizes of room recess. Such recesses as those at the side of chimney places make excellent sites for raised bookshelves of any small number to house the books of the family.

Open Shelves

The bookshelves shown in the photograph are in a recess 50in. wide. Four were built because the number of books laid out in a line showed the need for four. It was decided to use 8in. wide plank for shelves and sides, putting the sides 1in. from the rear wall of the recess to get good air circulation around the books. All libraries, remember, are careful to use open shelves as books kept

warped timber—you should be allowed for unusable pieces in planks. Buy a dozen 2½in. steel screws with Rawlplugs for wall and other fixing.

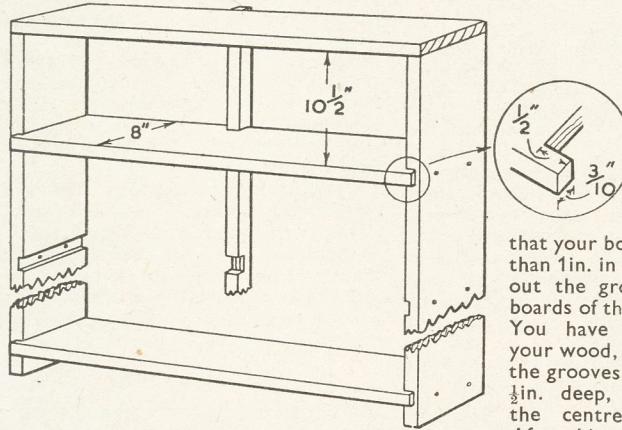
Of course, oak is a difficult wood to work—it requires sharp tools and effort—but good planing can be done on the ground if no bench is available. Softwood is cheaper, but will have to be painted, whereas oak can be rubbed with beeswax and left with the full beauty of the grain showing. The centre support shown in the diagram is only necessary with oak if some of the planks are warped.

Planning the Parts

Before you make a sawcut when you have the timber, plan out the wood carefully. Mark out the pieces, using a square. Cut the sides and top board exactly, checking your measurements, and cut the shelf boards to the width of the recess. Now roll up your sleeves and plane the



The completed shelves are handy for the armchair reader



A broken view with details of sizes and shelf fitting

open are less likely to get musty than those in shut-in cupboards.

As the matching of shelves to the side-board grooving is a matter for expert craftsmanship—especially if the recess walls are not true, it was decided to overlap the ends of each shelf to mask the grooving.

The Timber Required

Now that the controls are off hard-wood it is fairly easy to get oak boards. Second grade 8in. by 1in. oak will cost under 1/- per foot. Plan alternatives in plank length before you get to the timber stack where sizes are seldom exactly right. You will thus, perhaps, avoid buying too much, or worse still, too little timber. Watch out for badly

shelf boards at least approximately flat on both sides. Choose the best edge for the front of the shelf.

You will find that your boards are now less than 1in. in thickness. Mark out the grooves in the side-boards of the shelf thicknesses. You have carefully planned your wood, remember. Cut the grooves with a tenon saw ½in. deep, then smooth out the centres with a chisel. After this, plane the sides and bore holes in the grooves, about four in number to each side, for wall fixing.

The Wall Sides

Hold up the sides in the recess 1in. from the back and leaving room at the top for the thickness of the top board. Get the board held while you drill lightly through the prepared screw holes. Take away the boards and drill the walls. Insert the Rawlplugs and screw up the grooved boards. Before doing so make sure the tops are square or the top board, which should be fitted next will not join without an ugly gap. The top board is secured by four screws.

If the shelf is 50in. or less the centre strip of 2in. by 1in. wood with square notches of shelf width 1in. deep will be

hardly necessary if oak is used. But if the recess is more than the stated width then a centre strip must be separately secured to the wall in the centre with the top end screwed behind the top board, before that board is screwed to the sides.

Now hold up each shelf in turn to its appropriate grooves and mark the board for end trimming so that the projecting pieces shown in the circle detail are left as mentioned earlier, to mask the grooving.

Fitting the Shelves

When the shelves are cut they should slide neatly and smoothly into place. If any jamming occurs notice where it is happening and plane the shelf or trim the end slightly if the shelf is still a fraction too long.

Oak shelves look quite well if rubbed with beeswax after a good surface has been planed and glasspapered on them. Or they can be varnished or brush polished. Softwood should be given a coat of primer and hard-gloss paint of any desired colour. Stained softwood will seldom give the finish well-made bookshelves deserve.

This, you must remember is a piece of carpentry which will always be obvious, so make it a worthy attractive addition to the room. Undertake all the work with this in mind, paying attention not only to the actual construction but also to the finish. If you have to stain the wood make an experimental trial first on waste material.

Important points which need watching to obtain GOOD RADIO RECEPTION

MANY radio constructors seem to encounter much the same difficulties and it is hoped a little information on the points which arise most frequently will prove of help. Actually, many troubles can be cured easily, or readily avoided when the constructor knows exactly what to do.

Speaker Connections

Moving coil speakers are extensively used, but many users do not seem to realize that a transformer must be employed to couple them to the output valve in receiver or amplifier. If this

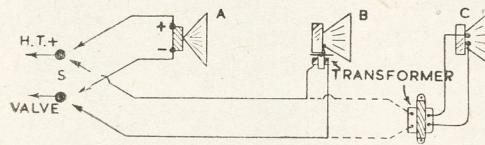


Fig. 1—How speakers should be connected

transformer is omitted reproduction will be very faint and distorted.

In Fig. 1 the usual two-speaker terminals or sockets of the set or amplifier are shown (marked S). Speaker (A) is the well-known moving-iron or balanced armature magnetic type. Such types are connected directly, as indicated, taking care to observe the polarity shown. This method of connection is also employed with ordinary headphones. Such speakers usually have a large adjusting screw, and this should be set for best results.

Speaker (B) is a moving coil one with transformer. The secondary of the transformer is permanently connected to the speech-coil winding on the cone



Fig. 3—Adding volume and tone controls

of the speaker. The primary is wired to the terminals on the set as shown, and there is no polarity to observe. If this type of speaker is bought with transformer, the latter is usually mounted on the speaker itself. If the transformer has various tappings, each should be tried because results will only be at their best when the transformer ratio is suitable for the particular output valve used.

Without Transformer

The drawing at (C) illustrates a moving coil speaker without transformer. If this is to be operated from the receiver, an output transformer must be added, as shown. The secondary, which consists of a few turns of thick wire, is connected to the tags on the speaker. The transformer must not be connected the wrong way round or results will be extremely poor.

Speakers such as that shown at (C) are used for extension listening, when an output transformer will already be present in the receiver itself. One output transformer can operate two or more speakers. All the speakers will be connected to the transformer secondary.

Pick-Up Connections

If a microphone or pick-up (for record playing) is to be used and no Pick-Up sockets are provided, these can be added as shown in Fig. 2. A lead is taken from one socket (marked P.U.) to Grid Bias 1.5 to 7.5 volts. (Best voltage must be found by trial). A second lead goes to a valvholder grid socket; with the usual 4-pin English-type base, this socket is the one rather close to the others, and opposite the most distant socket, which is Anode.

If the lead is connected to the output valve (which operates the speaker) only this one valve will amplify when pick-up or mike is used. If additional volume is required, transfer the lead to the valve before the output valve, when there will be two valves in circuit to amplify. (G.B. voltage will have to be reduced).

An ordinary gramophone pick-up or magnetic microphone can be connected at (A). With a microphone, sounds from the speaker must not reach the microphone itself, or continuous howling will result. To avoid this, place the microphone in another room, or well away from the speaker, and shielded from it.

Where a great deal of amplification is used howling may be caused by coupling between the leads. To avoid this, the grid pick-up or microphone lead should be screened, using the special braid available, as shown in dotted lines. The braid is wired to some convenient earthed point.

Carbon Microphones

Unlike the types previously mentioned, these do not generate any electrical impulses of their own, but only act as a resistance which fluctuates according to sound impulses. Accordingly these microphones should be connected to a small battery and the primary of a microphone transformer, as shown at (B), Fig. 2. The secondary of this transformer is wired to the P.U. sockets on the set.

A speaker output transformer will function quite well as a microphone transformer. The smaller winding (normally the secondary) should now be used as primary. The battery should be disconnected when the apparatus is not in use to prevent current drain.

Volume Controls

For simplicity, many small receivers do not have a volume control. Actually, the

reaction control often provides all that is necessary in this direction, but does not function when records are played with a pick-up. A potentiometer may be added (see (A), Fig. 3) to give full control of volume on radio, gram or with a microphone.

Connections are shown; leads (A) go to the pick-up sockets. A .5 megohm control is usual, but .25 megohm controls work equally well. Such controls have three small tags, and the centre one must be connected to the valve grid socket.

Tone Control

The detail at Fig. 3 also shows how a tone control can be added. Again, though a 25,000 ohm variable resistor or potentiometer is shown, a value from 10,000 ohms to 50,000 ohms is quite suitable. The condenser can also be of other capacities, though something

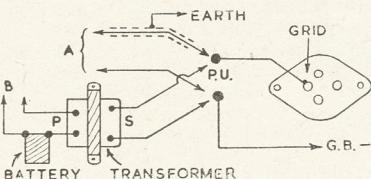


Fig. 2—Microphone and pick-up connections

between .02 and .05 is best. A very small condenser will give insufficient control effect; a large condenser will make reproduction muffled. The two leads (B) are connected to the speaker sockets of the receiver.

Alternatively, these leads may be connected to the pick-up sockets, and this tends to reduce needle-scratch, when playing records, because the noise made by the needle running in the groove of the record is to some extent by-passed.

Intervalve Transformers

Transformers used between valves in a receiver may have any ratio between about 1:2 and 1:5. Many different types are made and as the terminals or tags are

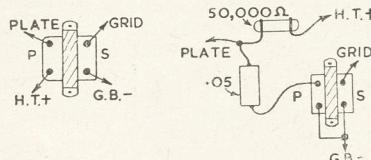


Fig. 4—Coupling transformer connections

not always in the same positions on different transformers, the constructor may be confused when wiring up from a circuit diagram. Actually, the markings on the transformer should be followed. (Usually, (P) is given to indicate 'Plate' and (G) to indicate 'Grid').

If only primary and secondary are

(Continued foot of page 150)

Tracing cloth can be readily used to make your own PHOTO XMAS CARDS

WITH the return of more photographic paper, workers will be thinking again of the possibility of making their own Christmas cards. Here is a simple method which, with a small piece of engineer's tracing cloth and the usual photo printing materials it is quite feasible to turn out a neat card to your own design and containing your own photographic print—say, one of your summer snaps.

Size and Shape

A piece of the linen a little larger than a post card is cut and pinned to a drawing board. Upon it a rectangle 5½ in. by 3½ in. is pencilled. Within these limits a greeting is arranged, artistic lettering being employed. A frame is also marked out at some suitable spot, inside which one of your own photographs will appear.

The arrangement should be pencilled in very lightly to start with, but when all is in order, it is gone over with Indian ink. A dark and fairly thick line is drawn round the chosen picture position and the linen inside the frame so formed is taken away with a sharp blade and straightedge.



Fig. 2—Tracing cloth negative without picture

Radio Reception—(Continued from page 149)

indicated (usually marked (P) and (S) on the component) connections are as shown in Fig. 4. To assure windings are connected in such a way that best results are obtained, the Grid and G.B. wires may be reversed over and the difference noted. Even when the transformer is fully marked, this change is sometimes worthwhile, especially in curing any tendency towards howling which may be present.

Connections

Some very small transformers only have three connections, and these must be fed from a resistor and condenser as illustrated. (The component values given are average, and not critical). In the diagram, the primary and secondary are shown as joined outside; with such a transformer, however, the junction will normally be inside the windings.

But, by joining as shown, an ordinary

All that now remains is to select a suitable negative from your collection and trimming it down till it just fits the opening, secure it with the slightest touch of gum on its edge to the linen. Printing can now be proceeded with in the usual way, treating the linen rectangle as a negative. The finished card comes out with white letters on a black base, the photograph appearing as through a window (Fig. 1).

The best kind of negative to use is rather a heavy one, which takes some little time to print up, as this gives the main body of the card the required period in the developer to print to a good black. Cards made thus are quite effective.

Wording Only

Greeting cards without pictures may also be made in this manner, the process being decidedly simpler. This time the design alone is drawn on the tracing linen to whatever size desired—but post card dimensions are often convenient. Fig. 2 shows a typical layout for, say, a club card, which will print up white on a black base. With this type of finish keep your design bold and open.

In this kind the exposure of the card (or paper) need not be quite so accurate and the material can be developed as far as it will go, overdevelopment being impossible; the only result of a long time in the developer being to give a deeper and stronger black. As before, however, the Indian ink lines must be clean and very opaque so that they print out perfectly white.

If the material used has a glossy surface it should be glazed in the usual way but a fine matt surface is better for writing signa-

transformer can be used in this way. As a result, no direct current passes through the primary, and this gives some improvement in quality of reproduction with small, cheap transformers. With large transformers, however, no improvement results.

If a volume control is to be added between a transformer and the following

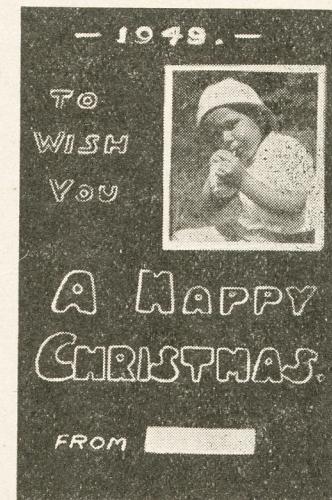


Fig. 1—A completed picture card

tures upon, it also allows of a little retouching, but with care very little after-treatment is required with this kind of work.

Another Method

A variation of the system is to make an intermediate transparency when a negative is secured from which black lettering on a white base can be printed, a photograph again being included if desired. When no photograph is being employed and the prints made straight from a tracing-cloth negative a quite cheap card can be used with effect as these will always print up to a good black by long development—a development that would clog any photograph that was being included.

valve, the lead from valve grid to transformer should be disconnected, and a wire taken from the centre tag of the volume control potentiometer to grid socket. Now each of the outside tags of the potentiometer is wired to one of the secondary terminals on the transformer, the grid bias lead being left undisturbed.

Simple way to make Wood Putty

FOR filling holes, cracks, and other blemishes in woodwork you can prepare useful wood putty from sawdust, whiting, and boiled linseed oil. Mix equal parts of the sawdust and whiting thoroughly together, then add the boiled oil gradually so that the whole works up rather like thick dough. A little stain may be added for colouring.

The putty ought to be made a little time before use to allow the oil to be absorbed, and given a good kneading again just before use. Also remember to paint the surface where it is to go in order to make it adhere firmly.

The substance is also useful for small shaped parts in model making, or even to form a "sea" for waterline ships.

A few notes for beginner and expert interested in GALLEON BUILDING

SO many of our readers are, or probably will be in the future, enjoying the construction of model galleons and old-time ships, that a few general hints on their construction and finish will be most helpful. The popularity of this type of model building continues to increase, and is added to every time we publish a design of some different ship in these pages.

We have now, of course, produced a dozen of them, covering most of the popular ships of history—the Santa Maria, Elizabeth Jonas', Bounty, Ark Royal, Revenge, etc. The models made from our pattern sheets (all of which are still obtainable) vary in style and detail, but in general principle their construction is always almost the same. Those who have not yet made one of these attractive historical models, can be recommended to do so, not only for the enjoyment of the actual work itself, but for the very striking old-time ship which results.

General Principles

For those so far inexperienced, a few general remarks may be also helpful. The models to be made, vary in size from 12in. long to nearly 2ft. The larger

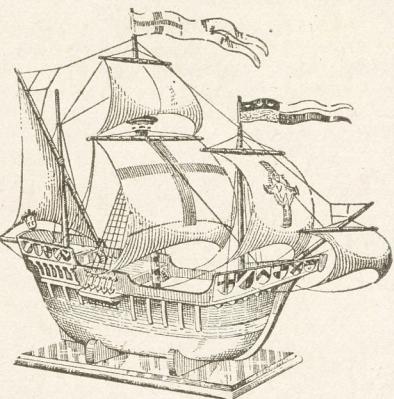
being at different times in our history.

The tiny *Santa Maria* for instance, with its single gun on each side, is a very different ship from the *Great Harry* with its castles on each side, its covered stern galleries and its 18 guns on each side.

Little-known History

In many of these historical ships, too, the actual detail of the original vessel has been lost, if it was ever available. We are so used to large blueprints, scale drawings and precision workings, that we are apt to forget many of the old-time ships were built on a trial and error basis. The craftsmen who handled them and brought them into shape, did so largely on experience and family or guild knowledge, which was never committed to paper. In many cases, too, there are no authentic drawings of the finished ships themselves, although from time to time various artists have pictured them. These pictures, however, may not be reliably correct.

In consequence, two or three models of the same ship may vary considerably, simply because they are built from different presumed details and pictures. This, of course, gives the worker a certain amount of latitude, and at the same time each period of history had its



get the bulk of the waste wood away to a general outline of the shape needed. A sharp, strong knife would serve the same purpose, although it is not the simplest thing to control this satisfactorily when getting near the finishing line. A coarse wide rasp is useful here, providing one does not tear away the wood too far before transferring to a reasonably coarse glasspaper. At this stage, the hull is in its generally finished shape, but the final smoothing must be done with a medium, and then, fine grade of glasspaper.

The hull being solid, there is a useful block of wood to handle for all this work, but a good plan is to fit it into a vice, providing you have put some waste wood as backing to prevent the jaws marking the actual job. Be sure in this final rubbing down, to get the balanced curve on each side of the hull. Drawings are usually given to show how this is marked off, and the various sections at different points should be studied in conjunction with the work.

Built in Layers

In the kits provided, the hull is built from various layers of wood glued against the separate upright central piece which runs through from deck to keel. Remember, in this connection, the keel most frequently extended below the curved shape of the hull. The position is largely ruled by the flat deck piece being fitted to the top of the upright keel so that the thicker pieces of the hull can be glued in the angle underneath.

Another point to bear in mind, and one which is often overlooked, is that in many of these ships the hull got gradually wider from the deck to the waterline, so that the sides sloped slightly inwards as they came up from the water. This is a point overlooked by some readers, who say that the wood provided is not wide enough. Many of the more historical ships of one period were built with a high stern, from which the deck was also mounted upwards. These spaces provided accommodation and outside stairs

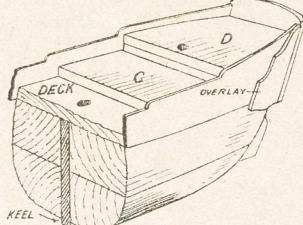


Fig. 1—Two illustrations showing how hull is built

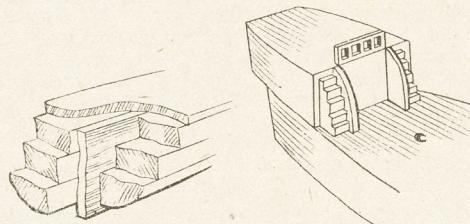


Fig. 2—Stern deck steps

the model, generally speaking, the more detail can be added. At the same time, of course, the larger model provides bigger pieces of wood to handle. The other way round, if you get a small model, then many of the fittings and parts are very tiny. Which you have, depends on the ability, patience and time available to the individual worker. A small nimble hand is obviously better in shaping, controlling, and placing the tiny pieces.

Simple Beginnings

Again, some models in themselves are naturally more elaborate than others, and here the worker who has not previously made one, should remember his inexperience and commence on one of the more simple patterns. We sometimes hear of a disappointed worker who has, in the first flush of enthusiasm, endeavoured to undertake, say, the *Ark Royal*, which is the most elaborate piece of work there is. These ships, you must remember, came into

own particular type, and in general this must be followed.

You could not, for instance, add two rows of gun ports to the *Mayflower* because it was not then done. The elaborate carvings on some of the ships such as the *Ark Royal*, gave place later to a more severe type, until you get to the *Victory*, with its plain black and white hull. These points must be borne in mind by the beginner, and help him largely decide which actual model he is going to undertake.

Having made his decision, the next thing is to get his kit of material with the large design sheet containing the full-size patterns of the parts required. These patterns provide for the wood of the parts being built up to form the solid hull and its deck. In consequence, a fretsaw is needed to cut the shape of the various pieces before gluing together. After that, it is largely a matter of shaping and here a variety of tools can be used.

Some prefer the small plane first to

were fitted to lead from one to the other. The decks can be added in the model merely by putting on extra thicknesses of wood, taking care that the outside edge is in line with the hull shape itself.

Solid Bulwarks

The bulwarks are added by gluing on thin plywood or fairly substantial card. These bulwarks follow the outline of the deck at its various steps, and were tall enough to provide a hand rail, and even a shelter for the people on the deck itself. In fixing this overlay, remember to allow for the curve of the sides. The part will be glued in place, overlapping a little on to the main hull portion.

For fixing it, apply the glue thinly and then put the overlay of the bulwarks on, commencing at the stern. Have some thin fretnails or pins ready, so they can be driven partly into the hull to help to hold the curved part in place until the glue has set. The nails or pins are not driven right home, and are carefully extracted afterwards. Work the overlay on gradually, from the stern towards the bow, finally bringing it round to the point as required. It can there be finished off between on each side of the bow shape or whatever allowance is made in the pattern.

As officers' quarters were always in the stern, you find windows and often elaborate carving around that portion. In consequence, a further layer of wood is added across the stern, which in turn slopes slightly outwards and upwards, and again projects well above the stern deck itself. Reference to the detail at Fig. 1 will show all these parts to which we have been referring, and should be borne in mind as construction goes ahead.

Painting the Hull

When the hull is finished in its natural state, it should be given its coat of paint or varnish. Here again, the

finished result may vary according to the ship and the period. In every case, however, the deck should be left in its natural state by being varnished after pencil lines are drawn along it to indicate the planking.

These lines, by the way, can well be scribed into the deck with the point of a knife and a sharp, hard lead pencil run along to make them more distinct. Do not forget, too, to have this planking in proportion to the width of the ship itself. The lines, indeed, need not be more than $\frac{1}{8}$ in. or $\frac{3}{16}$ in. apart, but should be clearly marked without being too obvious.

The colouring of the hull is applied in the usual way. If you are using a dark stain, then apply just a single coat of polish over it to get a weather-beaten effect. If the hull is to be in bright colours, then poster paint is quite suitable. This is obtainable in small jars from artists' shops or most colourmen stores. Do not buy a larger quantity than you think you need, because it is apt to dry up—particularly the water paint. All the paint is applied with a fine soft small paint brush. It is put on evenly and allowed to harden before any adjoining colour is put next to it.

Line Markings

Markings on the hull can be added in distinct lines, but here again, care must be taken to get them true and in proportion. We have seen sometimes, portholes for instance, which are absurdly large, and ornamental lines which were merely blobs drawn along in a ridiculously thick and wavy pattern. It is not the easiest thing to get a straight line on the curved surface. If you are unable to do it yourself, then get some artist or draughtsman who can finish it off for you.

The same applies to the various shields found on some of the ships, and to the windows and curved effect on the

sterns. In these cases, however, the painted work can be carried out on drawing paper, and then the whole thing glued in place on the hull itself.

The deck additions, themselves must be added carefully, and again in pro-

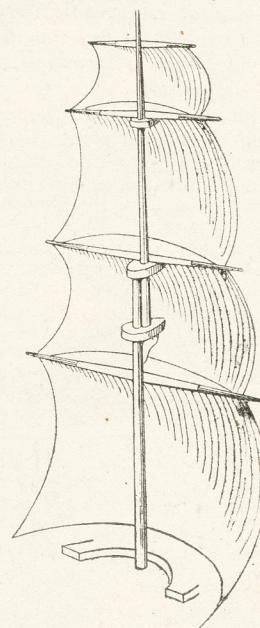


Fig. 3—Sails and mast erection, will be dealt with in next article

portion to make realism. The guns which stand about on their little wheeled platforms should be not so large as to overpower the rest of the fittings. The various hatches or steps or companions must look properly in keeping with their surroundings.

Deck Addition

We mentioned earlier, the steps leading from one deck to another as required in the larger models. These can quite easily be completed by filing them out of a solid piece of wood, and then fitting into the right-angle of the deck. In certain instances, wind shields and hand rails were provided each side of these steps, and an example is given in the small diagram at Fig. 2. In this you also see the hand rails which were erected at the far end of the stern decks. All these tiny parts can be cut from very thin wood, or you may be able to do it with card.

A useful tool in this connection is an ordinary safety razor blade of the single edge type. These have a binding along the opposite edge which reduces the likelihood of cut fingers. These blades are exceedingly useful for cutting card, shaping tiny pieces, etc.

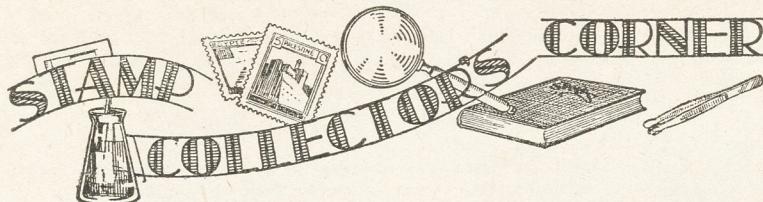
There are simple gadgets obtainable for holding these blades, which make them much safer in operation. Or you can easily make a tiny holder by screwing the blade between two pieces of thin wood, leaving the cutting edge projecting just sufficiently to be useful but not dangerous.

(To be continued)

A Loyal Machine and Machinist

THE picture is one of our loyal readers in Canada—Mr. Fred. Coates, of 985 Eastern Avenue, Toronto. The Hobbies Imperial Fretmachine was bought in that city in 1913, and has been used constantly by its owner. Examples of his work are seen in the large figure of the boys and the penguin, in the left hand corner, which are cut in $\frac{1}{8}$ in. pine. He has always found fretwork a very interesting hobby, he says, and still does. All kinds of work is undertaken and apart from wood, he uses plastic masonite, wall-board, beaverboard, etc., with satisfying results.





CORNER

Christmas Presents for Philatelists

IT is not too long before Christmas, so that it seems a very suitable time to discuss the hobby of stamp collecting and to give some advice on the equipment that is necessary, advisable and desirable for those wanting or receiving appropriate presents. Needs under the heading of 'necessary' can be dismissed in two items, a packet of stamp mounts and an album. Stamp hinges are by far the cheapest thing that have to be bought, yet frequently one sees someone using pieces of stamp paper instead.

It pays to buy the very best. Cheap hinges either fail to stick the stamps into the album or else stick them so tightly it is impossible to remove a stamp without tearing the album page or the stamp.

Albums

Albums can cost anything from shillings to pounds, according to the type and the binding. If you are a beginner then have a small album. There is nothing much more discouraging when you start collecting than to turn over page after page of the album without finding any stamps in them.



The type of stamps needing a magnifying glass

about 2,000 stamps then you can use quite a big album, but if you have only about 100, then use a small one.

If you are already a collector and want a new album you should know what you want and no words here will alter your idea. If, however, you do not quite know, remember you can get various kinds such as printed albums, blank albums—having pages with squares on them—and also loose leaf albums with quadrille lined leaves.

The printed album has a space for all the stamps issued, the blank album has squares which are nearly all the same size. But as stamps are not the same size you meet a difficulty immediately. The quadrille lines allow you to place the stamp where you wish. The loose leaves allow you to use up just the amount of space that your stamps require, so when you get more stamps you put in another leaf for that particular country.

Tweezers

So much for the bare necessities. Now for the extra items which are advisable. Stamp tweezers are quite cheap—about 3/-—and after a little practice very

easy to use. They do save the stamps from getting dirty, due to the natural grease which is always on the fingers.

A magnifying glass is essential, for however sharp ones eyes may be at certain times it is necessary to magnify a certain part of the stamp.

As an example look at the illustration on this page. You see a map of Newfoundland which appeared on the 1928 and 1931 stamps. These two stamps were very similar. Indeed practically the only difference is the fact that on one the name C. Norman is printed above the name C. Bauld; on the other specimen the names are reversed. But the names are so small that it is impossible to read them without a magnifying glass. A good glass should last a life time so it is silly not to get the best.

A Catalogue

A stamp catalogue is something without which you cannot have a well-arranged collection. Unfortunately they are now rather expensive, but the consolation is that it is not necessary to have a new one every time one comes out. Not only does the catalogue allow you to arrange the collection correctly, it tells you the way in which to distinguish one issue from another, and also gives you the varieties of printing and colour.

Do not think, however, that if you have a catalogue you will be able to work out the value of your collection by just finding the stamp and then writing down the value as given in the catalogue. If you do this you will be most disappointed when you come to sell your collection.

Stamp Outfits

If you buy or are given one of the stamp collecting outfits, then among the items supplied, you will have a watermark detector and a perforation gauge. Now for the beginner neither of these is necessary. Later on both will be needed, but even then the perforation gauge is the more important because it is quite simple to use any black surface to help you to see the watermark of a stamp if you cannot see it by holding the stamp up to the light.

Well there are a few items which should enable you to tell any friend or relation what you want for a present or help you to give a present to a friend if he is a stamp collector.

Stamp Gifts

There are two other items which are frequently forgotten—stamps themselves and a case to carry duplicates. A word or two about buying stamps. What is best to buy will depend upon what the collector already has. A young collector or beginner could do with a

packet of mixed stamps and that would be best for him. He will then have the pleasure of sorting out the packet and any stamps that he already has will serve as duplicates to exchange with others.

If, however, the collector already has a big collection he would get too many duplicates and in that case either a packet of stamps from one country or else a theme packet such as a packet of map stamps, birds, ships—there are no end of packets got up to supply this want. Packets or Silver Jubilee stamps, or Royal Wedding and so on.

Definite Requests

Lastly, you can ask for certain stamps, naming the country, the date of issue and the values. Or ask the dealer to send an approval book with certain stamps in it, then when the book comes you take out exactly what you want as each stamp is separately priced.

If you want some new stamps then you can go for some of the Christmas Charity stamps which are issued every year by such countries as Switzerland and New Zealand, now on sale.

The Latest New Zealand Health Stamps

MR. G. L. Donaldson of Wellington, New Zealand, has again this year sent us by Air Mail one of the Official Souvenir Covers so that we are able to illustrate this for you; he also sends us some cuttings from the Wellington Evening Post. One of these cuttings is of particular interest because it chronicles one of those items so dear to the heart of all philatelists—a retouch.

If you look at the illustration of the Official Cover you see there are two penny stamps. Each carries a premium of a halfpenny for the purpose of sending children to one of the Health Camps. There are also two twopenny stamps bearing a premium of one penny for the same purpose.

An Error

The retouch is on one of the two penny stamps. One stamp from each sheet has the dot under the 'D' of one penny missing. So you want to look carefully at all the stamps you get and see if you are lucky in getting one of the wanted ones.

Now for a few lines about the very popular Charity stamps that New Zealand started in 1929. The first of

these that was issued showed a picture of a nurse and the wording was 'Help stamp out Tuberculosis'. Then a second appeared, this time with 'Help promote Health'.

In 1931 came one of the best-liked of



Mr. G. L. Donaldson,
C/o Canadian Pacific Railways,
Johnston Street,
WELLINGTON 1

HEALTH STAMPS SEND CHILDREN TO HEALTH CAMPS

A picture of the First Day Cover from New Zealand

all the New Zealand stamps. It was called 'The Smiling Boy' or sometimes the 'Blue Boy' and the 'Red Boy'. These last terms referred to the colour of the stamps, the first term referring to the design. Both of them carried a premium of one penny for charity, the postage being one penny (scarlet) and two

pence (blue). They are both catalogued now at over £3 each.

The year 1932 gave us 'Hygeia—The Goddess of Health', and in 1933 there was a view of the 'Path to Health', while 1934 had a crusader inscribed 'Crusade for Health'. A rather novel design was used as the frame for the picture on the 1935 stamp. It was a keyhole through which one can see a child playing on the sands. The stamp's name is 'The Key to Health'.

The next year we were given a very pretty child looking through a life-belt which bears the slogan 'Safeguard Health'. These illustrations must surely indicate the thought which goes into the designing and lettering of stamps.

Rock climbing was the subject of the 1937 stamp, and two small children playing with their toys, the design of the 1938. The next year New Zealand did as she had done in 1931—namely,

issued two charity stamps—and as they have always proved very popular she has issued them ever since. In some cases the designs are the same for each value.

The Princesses

The 1939 showed three boys playing with a beach ball, the same design sufficed for the next two years, except for an overprint giving the date. Two children sharing a garden swing appeared on the 1942 issue, while in 1943 the two Princesses appeared on triangular stamps—Princess Margaret on the one penny with a halfpenny premium, and Princess Elizabeth on the twopenny with one penny as premium. The next year the Princesses again appear, this time together on the stamps both dressed as Girl Guides.

The stamps of 1945 had the Statue of Peter Pan as seen in Kensington Gardens, and the next year it was a soldier helping a child over a stile. Then came the statue of Eros, while last year readers will recall we illustrated a stamp showing a boy sitting at an open window watching other children playing. Then, as now, it was Mr. Donaldson who was kind enough to supply the stamps—He deserves a very Happy Christmas for his kindness and we all hope that he has one.

How the home handyman and carpenter can undertake FURNITURE RECONSTRUCTION

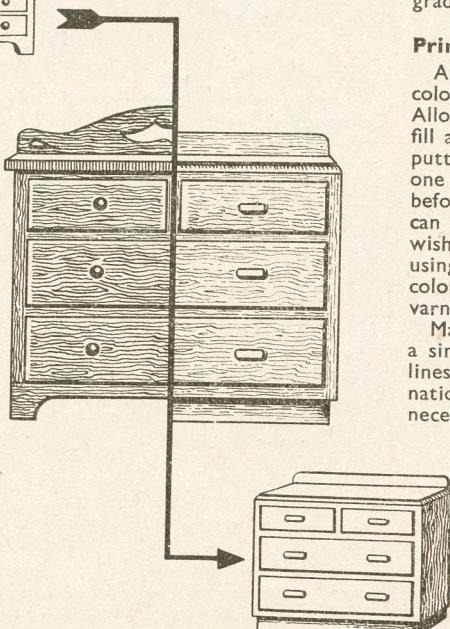
RECONSTRUCTING old-fashioned furniture is a fascinating pastime. Most old pieces can be given a new look if reconstruction is designed to follow the general lines of the old piece. This is very effectively illustrated in the drawing which shows how an old chest-of-drawers can easily be modernized. We have already shown how a lounge chair can be dealt with.

In this case the work consists of cutting back the overhanging top, removing the shaped legs and fitting a new base, and replacing the back. Very little extra timber is required. Old-fashioned handles can be replaced and the reconstructed piece painted or brush-grained.



the bottom of the carcass. The new underslung base need only have a front and sides; it should be glued and screwed under the body.

Most old furniture of this type is stained and varnished, and it will be necessary to



remove the old finish before applying paint. Steel wool is best for this job and will quickly remove scaly varnish. When using the steel wool it is advisable to wrap a scarf round mouth and nostrils to prevent breathing particles of varnish. Use glasspaper in diminishing grades to complete the cleaning off.

Priming and Painting

Apply a thinly mixed coat of lead colour to prime the old and new wood. Allow the priming to dry, rub down and fill all holes, cracks and blemishes with putty or one of the patent fillers. Apply one or two coats of flat undercoating before applying the finishing coat which can be enamel or gloss paint—or, if you wish, the piece can be brush-grained using scumble on a suitable background colour and finishing with a coat of varnish.

Many old pieces can be modernized in a similar way by following the general lines of construction. A little imagination and careful planning are all that is necessary—for instance the chest pictured here could easily be made into a useful cabinet by removing the lower drawers and fitting doors and shelves.

Much of the work depends on your own particular furniture, what you want to convert it to, and the timber or boards you can obtain to make a good job of the result.

Lower the Top Back

Commence by cutting back the overhanging top; trim it flush with the carcass, and work a moulded edge at the front and both sides. This gives the usually thick top a lighter appearance—if the edges are rounded instead of moulded, the effect will be the same. Cut and fit a low back with rounded corners and edges (the new back can be omitted if considered unnecessary).

Remove the drawers and renew the runners by turning them over. Fit modern handles. Cut off the old legs by sawing through front and sides flush with

There is health and pleasure for those who undertake HIKING IN WINTER

PERHAPS you think the countryside a bleak and desolate place in grey winter days; that there is little to see of interest. But, if you have ever hiked across country at this period and used your eyes properly, a different story you will tell.

Never put away your hiking gear when winter comes; it is a big mistake. But 'play safe'. That is, go forth prepared for anything you may meet in the shape of muddy paths, slippery slopes, sudden mist, and inclement weather.

Strong boots, warm slacks, and thick woollen socks are essential. A pullover and scarf, plus a mackintosh, and 'emergency rations' in your haversack. Remember, many wayside cafes do not open during the winter months, though quite a few Youth Hostels never close down.

Weekly Jaunts

Tramping in winter is not confined to a few cranks. Many clubs have their weekly fixtures, and each week-end finds hundreds of enthusiastic hikers abroad. You will see the week-end rambling fixtures printed in the Saturday papers in the provinces.

The usual plan is to take train or 'bus to a certain venue, then do a circular tramp back to the starting point, and train or bus it home. This idea, of course, can be varied, but it is a frequent method adopted by the 'regulars' in winter, chiefly on Sundays. Join a club is wise advice.

Naturally, with the shortened daylight you have to curtail the mileage actually tramped, and this must be remembered in plotting your course across country. Booklets giving full particulars of local rambles are to be obtained from the bookseller's shops in many provincial towns. If any such are published in your own home town, it will pay you to get one.

Choose your day. If the weather forecast predicts bad conditions for outdoor rambling, postpone your outing. Fortunately, we do enjoy many really nice days in mid-winter—days of clear skies with a nip of frost in the air, when there is a zest in being away on the hills or in the fields, and life seems good, and exhilarating tingles flow through your veins after an hour's grand exercise in the open.

Wild Life

Even in winter the rambler will find that there is much wild life about by field and hedgerow and if he keeps a log-book will need his or her pencil. The notes may be brief or ample, according to one's inclination; but they should be accurate and faithful records.

No longer embowered in shady boscage and aglow with gay blossom, the lane in winter is grey-toned save where

the remaining 'haws' blush ruby-red in the pale sunlight. Though hedgerows are naked in their undress, the little winding track is attractive to wild creatures.

Bird Flights

In these austere days they gather closer; at least, many birds do, roving to and fro in flocks. Small birds assemble in social company. Momentary white flashes gleam as parties of bachelor finches scatter across the path; linnets appear in the tops of bushes, to vanish as quickly. Goldfinches are seeking the seeds in the dry heads of thistles under the tangled hedgerow.

Many winter migrants will be noted. Fieldfare, redwing, siskin, goldcrest, brambling, crossbill, and foreign pigeons, smaller than our native ringdove. If the path takes the hiker along the banks of

A Gift Design
next week for
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a stream the grey wagtail will often provide a charming picture, as he flits about the shiny pebbles like some 'animated flower'. The gold of his underparts gleams bright as he spreads his wings to fly. When primly walking on the pebbly strand his long springy tail in black and white quivers with his every movement, as though it were on a delicate spring.

Long-tailed tits love to roam in family parties and nothing gives one more pleasure than to see such a troop of the charming birds in black and white plumage with long dainty tails, flickering amid the bare willow boughs, twittering softly in the grey half-light. Waterhens, feeding in the field, scuttle hurriedly into the water, feeling that security lies there; they can dive if necessary and hide under the hollow banks.

In the low-lying valley, flocks of blackheaded gulls, now lacking their dark-brown hoods (which they will don again in springtime), peewits, starlings, and mixed flocks of finches, fly to and fro by the brimming river. Ducks of various species mallard, teal, pochard, sheld-duck, wigeon, and shoveller—many of them visitors from the far north—haunt the pools and meres, enjoying the hospitality of our milder climate.

Winter Woods

If your ramble includes a stretch of

woodland, you will enjoy the beautiful vistas, now the deciduous trees are stripped, each tree now showing so well its own individuality and form. Beeches are stately in winter, with their huge satiny boles supporting shapely boughs overhead.

Elms and birches possess a singular beauty at this period, and the pines have a distinctly majestic look. Of all the woodland giants, however, the oak is the noblest with its gnarled, massive trunk and contorted limbs.

Winter woods are ever beautiful, but if you go forth on a morning after a sprinkling of snow, then the scene is pure Fairyland. A mighty decorator is the snow, when every twig is adorned and silvered over.

After snowfall, too, the rambler may read much writing on the whitened ground, when the great number of tell-tale markings of birds that hop, birds that walk, and others that do a bit of both intermingle with the rabbits' tracks criss-crossing the path. Tiny penicillings of voles and mice and the dog-like pads made by the fox may all be traced, giving one an impression that there are many more wild-folk about in winter than we imagine.

On Moonlit Nights

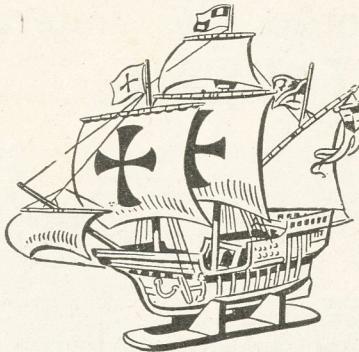
Have you ever gone out on a winter's evening when the moon shines brightly in a frosty sky, for a short hike across country? It is worth it, for a change! Choose a night when the moon is full, the weather crisp and clear. Take the open fields for preference. Have a hot supper before you start; and you will be ready for a hot drink on your return. But you will enjoy every minute of it.

Moonlight is always wonderful, but seldom more entrancing than on these winter evenings, when you can start out about eight o'clock and get home before midnight. At this season the moon rides high, with an angle of illumination comparable with that of the sun at midsummer. Shadows are reduced to a minimum, the landscape being flooded with silver-wash all soft glowing.

Joys of a Walk

At no time of year is moonlight so charming and impressive, though you must leave the artificial lights of town and village far behind to appreciate the full glory of the Queen of Night as she walks abroad in her 'silver shoon'.

Some nights the silence is wonderful; yet listen—an owl hoots, a peewit wails, there is a swish of wings as a night-flying bird passes over. From the copse comes the cry of a dog fox questing for a mate, for foxes pair in winter. Try a moonlit hike; it is a novelty if no more; to me, it is marvellous, beyond words.



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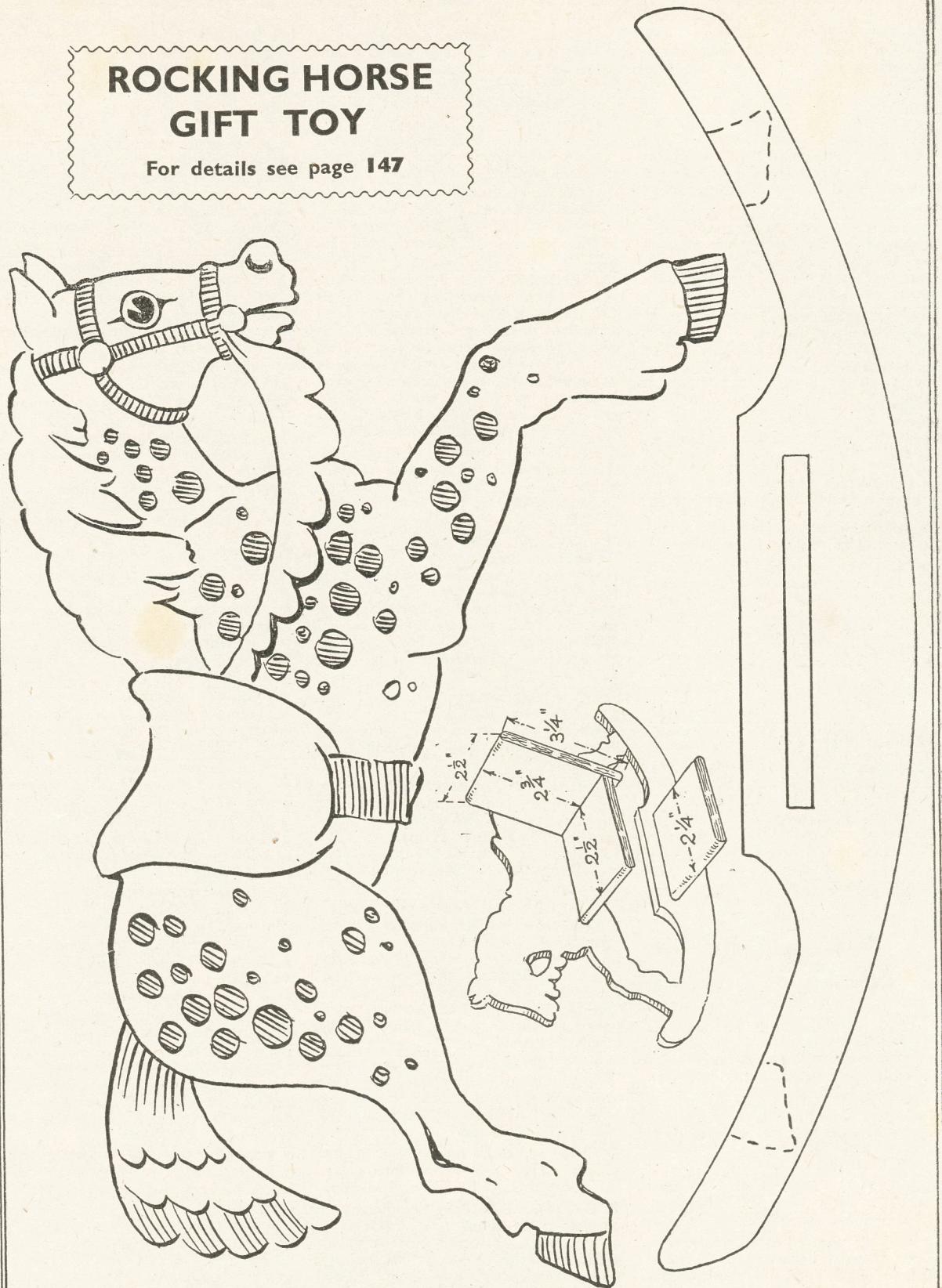
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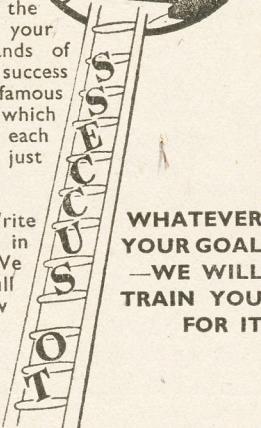
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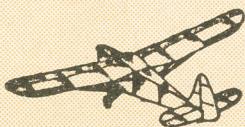
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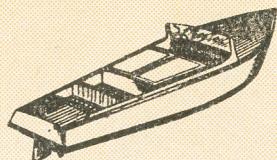
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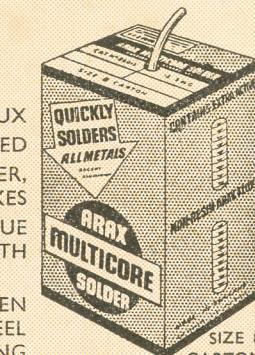
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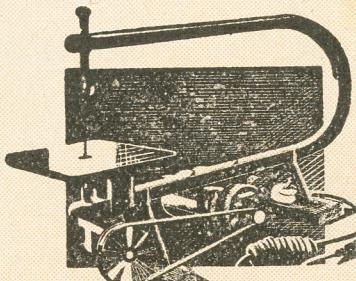


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